



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

and to H at T_1' . Then

$$EC_1 + C_1F = EC_1 + C_1T_1 = ET_1 = m,$$

$$HC_1 - C_1F = HC_1 - C_1T_1' = HT_1' = t;$$

and C_1 lies on both curves. There are in general four such intersections.

Case 6. Two Hyperbolas. The construction and proof in this case are entirely similar to those of Cases 4 and 5. There are in general four intersections.

II. AN ARITHMETICAL PERPETUAL CALENDAR.

By PHILIP FRANKLIN, Princeton University.

In connection with the discussion of perpetual calendars given by Doctor Morris in the MONTHLY, 1921, 127, attention is called to a formula given by Christopher Zeller¹ which enables one to obtain by merely arithmetical operations the day of the week on which any given date falls. It is thus an arithmetical perpetual calendar, giving the same information as the mechanical ones described by Doctor Morris.

$$w = \left[\frac{c}{4} \right] - 2c + \left[\frac{y}{4} \right] + y + \left[\frac{(m+1)26}{10} \right] + d,$$

where

c is the number of the century,
 y is the number of the year in the century,
 m is the number of the month,²
 d is the day of the month,

and the number of the day of the week to be found is the remainder obtained by dividing w by 7. $[X]$ means the greatest integer in X .

E.g., for March 4, 1921, we have

$$\begin{aligned} w &= \left[\frac{19}{4} \right] - 2 \times 19 + \left[\frac{21}{4} \right] + 21 + \left[\frac{(3+1)26}{10} \right] + 4 \\ &= 4 - 38 + 5 + 21 + 10 + 4 \equiv 6 \pmod{7}, \end{aligned}$$

giving the sixth day of the week, or Friday; while for February 22, 1921, we have

$$\begin{aligned} w &= \left[\frac{19}{4} \right] - 2 \times 19 + \left[\frac{20}{4} \right] + 20 + \left[\frac{(14+1)26}{10} \right] + 22 \\ &= 4 - 38 + 5 + 20 + 39 + 22 \equiv 3 \pmod{7}, \end{aligned}$$

giving the third day of the week, or Tuesday.

As noted by Zeller, to prove the formula correct, we have merely to check it for one date and notice that it gives the proper changes when we increase any of the numbers on which it depends. The reader will find this statement easy to verify if he uses the facts given in the article referred to above.

¹ *Acta Mathematica*, vol. 9, 1887, pp. 131 f.

² January and February are counted as the 13th and 14th months of the preceding year.